

CLAIMS

1. A method for determining the rate of transcription of a transcriptional unit in a composition of cells, said method comprising:-

lysing the cells and obtaining from the cells a preparation of nuclei comprising said transcriptional unit with nascent RNA strands attached thereto and placing same on ice to temporarily inhibit continued transcription and then placing said nuclei under conditions to permit transcription of the transcriptional unit in the presence of biotin-16-UTP to thereby provide a population of biotin-labeled nascent transcripts; and

isolating said biotin-labeled nascent transcripts by immobilizing same onto streptavidin-labeled iron beads and purifying same by magnetic separation and quantitatively determining the level of specific biotin-labeled RNA transcripts by subjecting the biotin-labeled RNA transcripts to real-time PCR.

2. The method of Claim 1 wherein the cells are mammalian cells.
3. The method of Claim 1 wherein the biotin-labeled RNA transcripts are eluted from the iron beads prior to the quantitative determination.
4. A kit for determining the rate of transcription of a transcriptional unit in a composition of cells, said kit comprising:

in compartmental form multiple compartments each adapted to comprise one or more of buffers, diluents and enzymes in single or multiple components which are required to be admixed prior to use, said kit further comprising instructions for use wherein the method is conducted by lysing the cells and obtaining

from the cells a preparation of nucleii comprising said transcriptional unit with nascent RNA strands attached thereto and placing same on ice to temporarily inhibit continued transcription and then placing said said nucleii under conditions to permit transcription in the presence of biotin-16-UTP to thereby provide a population of biotin-labeled nascent transcripts; and

isolating said biotin-labeled nascent transcripts by immobilizing same onto streptavidin-labeled iron beads and purifying same by magnetic separation and quantitatively determining the level of specific biotin-labeled RNA transcripts by subjecting the biotin-labeled RNA transcripts to real-time PCR.

5. The method of Claim 4 wherein the biotin-labeled RNA transcripts are eluted from the iron beads prior to the quantitative determination.